

**Abstract**

A detector device (75) for detecting incident radiation at particular wavelengths is disclosed. The device (75) includes a base layer comprising a substrate (77). A resonant cavity is formed on the base layer between a pair of reflectors. One  
5 reflector is formed by a first reflector layer (83) disposed in fixed relationship with respect to the base layer and the other reflector is formed by a second reflector layer (91) disposed on a membrane (89) in substantially parallel relationship to the substrate (77). A detector (79) is provided within the cavity to absorb incident radiation therein for detection purposes. By placing the absorbing layer of the  
10 detector (79) within the resonant cavity, high quantum efficiency can be achieved using very thin absorbing layers, thus significantly reducing the detector volume and hence noise. Various different arrangements of the detector device (75) and different methods of fabricating the same are also disclosed.